**SCHEME OF WORK OF MATHEMATICS PRIMARY SIX**

**THE CITY OF KIGALI**

**DISTRICT : GASABO**

**ACADEMIC YEAR: 2022-2023**

**SUBJECT: MATHEMATICS**

**CLASS: PRIMARY SIX (P6)**

**TEACHER'S NAME: ……………………………………………………… SCHOOL……………………………………………………….. SECTOR……………………………………………..**

**NUMBER OF PERIODS PER WEEK: 8 PERIODS……………**

**FIRST TERM**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***DATES***  ***&***  ***WEEKS*** | ***UNIT TITLE*** | ***LESSON TITLES*** | ***LEARNING OBJECTIVES*** | ***TEACHING METHODS&TECHNIQUES*** | | ***RESOURCES***  ***AND***  ***REFERENCES*** | ***OBERVATION*** |
| ***WEEK 1***  ***26-30/09/2022*** | ***Unit 1: Reading, writing and comparing whole numbers beyond 1,000,000*** | **Lesson1**: Reading and writing numbers beyond 1000 000 in words  **Lesson 2**: Reading and writing numbers beyond 1000 000 in figures | **Knowledge and understanding**:   * Identify the place values of digits beyond 1000 000 * Read and write numbers correctly * Describe steps taken when rounding off numbers.   **Skills:**  - Compare numbers  - carry out addition, subtraction, multiplication and division of numbers beyond 1000 000  **Attitudes and values:**   * Appreciate the importance of accuracy in reading and writing numbers and assessing how big there are.   ***Key unit competence:*** To be able to read, write and compare whole numbers beyond 1000 000. | * Written work * Question and answer * Game play * Written evaluation | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda  (MASTEP Page 1-32 ) | |  |
| ***WEEK 2***  ***03-07/10/2022***  ***WEEK 3***  ***10-14/10/2022***  ***WEEK 4***  ***17 -21/10/2022*** | **Lesson 3**: Place values and comparing numbers  **Lesson 4**: Solving problems using calculation strategies  **Lesson5**: Rounding to the nearest (tens, hundreds, thousands, etc)  .  ***UNIT ASSESSMENT*** |  |
| ***Unit2: Multiplication and division of Integers*** | .  **Lesson** 1: Multiplication of integers  **Lesson 2**: Division of integers  **Lesson 3**: Solving problems involving multiplication and division of integers.  ***UNIT ASSESSMENT*** | **Knowledge and understanding:** Describe the steps taken when multiplying and dividing integers.  **Skills:** Carry out multiplication and division of integers.  **Attitudes and values:** Appreciate the importance of accuracy in multiplication and division of integers.  ***Key unit competence:*** To be able to multiply and divide integers. | * Written work * Question and answer   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  . Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.  (MASTEP Page 33-40) | |  |
| ***WEEK 5***  ***24-28/10/2022*** | ***Unit 3;***  ***Powers and Indices, LCM and GCF.*** | **Lesson1**: Definition of “base” and “exponent”  **Lesson2**: Multiplication and division of indices  **Lesson3**: LCM and GCF | **Knowledge and understanding:**   * Explain the term “base’ and “exponent” * State and Explain the laws of indices involving multiplication and division of indices   **Skills:** - Apply the laws of indices in multiplication and division   * Apply the LCM and GCF in solving problems.   **Attitudes and values:** Learners should respect each other when they are working in groups.  ***Key unit competence:*** To be able to use powers and indices, and apply the Lowest Common Multiple (LCM) and Greatest Common Factor (GCF) when solving problems. | * Written work * Question and answer * Game play   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.  (MASTEP Page 41-54 ) | |  |
| ***WEEK 6***  ***31/10-04/11/2022*** | **Lesson 4**: Solving problems involving LCM and GCF (Application of LCM and GCF)  ***UNIT ASSESSMENT*** |  |
| ***WEEK 7***  ***07-11/11/2022*** | ***Unit 4: Operation on fractions*** | **Lesson 1**: Multiplication and Division of fractions  **Lesson 2:** Solve problems involving multiplication and division of fractions. | **Knowledge and understanding:** Explain how to multiply and divide fractions  **Skills:** - Multiply and divide fractions   * Calculate word problems involving fractions.   **Attitudes and values**: Appreciate the importance of fraction in daily life situation.  ***Key unit competence:*** To be able to apply fraction in daily life situation and solve related problems. | * written work * Questions and answers * Game play   Oral and written evaluation | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.  (MASTEP Page 55-68 ) | |  |
| ***WEEK 8***  ***14-18/11/2022*** | **Lesson 3:** Application of Fractions  ***UNIT ASSESSMENT*** |  |
| ***WEEK 9***  ***21-25/11/202***  ***WEEK 10***  ***28-02/12/2022*** | ***Unit 5: Rounding and conversion of decimal fractions / numbers*** | **Lesson1**: Conversion of fractions to decimal and vice versa  **Lesson 2**: Round off decimal numbers to the nearest (tenths, hundredths, etc.)    **Lesson 3**: Solving problems involving rounding and conversion.  ***UNIT ASSESSMENT*** | **Knowledge and understanding**:   * Describe various steps taken when rounding off numbers * Illustrates and explain how to match fractions and decimals   **Skills:** - Apply the knowledge required to match fraction and decimals   * Carry out various calculations rounding off numbers     **Attitudes and values:** Confidently and accuracy should be exhibited among learners in groups  ***Key unit competence:*** To be able to round off decimals, Convert fractions to decimals and vice versa, matching fractions and decimals. | * written work * Questions and answers   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.  (MASTEP Page 69-82 ) | |  |
| ***WEEK 11***  ***05-09/12/2022*** | ***REVISION PERIOD*** | | | | | | |
| ***WEEK 12***  ***12-16/12/2022*** | ***EXAMINATIONS PERIOD*** | | | | | | |
| ***WEEK 13***  ***19-23/12/2022*** | ***MARKING AND MAKING SCHOOL REPORTS*** | | | | | | |

**SECOND TERM**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***DATES***  ***&***  ***WEEKS*** | ***UNIT TITLE*** | ***LESSON TITLES*** | ***LEARNING OBJECTIVES*** | ***TEACHING METHODS&TECHNIQUES*** | ***RESOURCES***  ***AND***  ***REFERRENCES*** | ***OBERVATION*** |
| ***WEEK 1***  ***09-13/1/2023*** | ***Unit 6: Ratios, Proportions, Percentages and Mixtures*** | \*Correction of examination of first term ( 2 periods )  **Lesson 1**: Percentages   * Conversion of fraction to decimals to fractions and vice versa * Comparing quantities as percentages * Increase or decrease a given number by a given percentage. * Finding percentage profit and percentage loss. | **Knowledge and understanding:**   * Explain the meaning and the role of percentages * Explain the relationship between ratios and proportions * Describe different ways of working out mixtures   **Skills:**   * Apply percentages, ratios, proportions and mixtures in solving mathematical problems * Convert percentages to decimals and vice versa   **Attitudes and values:**  Acknowledge the importance of percentages, ratios, mixtures and proportions in daily life situations | * Written work * Questions and answers * Game play | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda .  (MASTEP  Page 83-118 ) |  |
| ***WEEK 2***  ***16-20/01/2023*** | **Lesson 2**: Ratios  **Lesson 3:** Proportions |  |
|  |  |  | ***Key unit competence:*** To be able to work out ratios, proportions, percentages and mixtures | Oral and Written evaluation |  |  |
| ***WEEK 3***  ***23-27/01/2023*** | **Lesson 4**: Mixtures   * Average price of the mixtures * The price of one type of the mixtures * Quantity of one type of the mixtures * Quantities of both types of mixtures.   **Lesson 5:** Solving of word problems involving ratios, percentages, mixtures and inverse proportions.  ***UNIT ASSESSMENT*** |  |
| ***WEEK 4***  ***30-03/02/2023*** | ***Unit 7: Relationship between Volume, Capacity and mass.*** | **Lesson 1:** Relationship between volume, capacity and mass  **Lesson 2:** Conversion between units of volume, capacity and mass.    ***UNIT ASSESSMENT*** | **Knowledge and understanding:**   * State the units of length, capacity and mass in solving problems * Explain the relationship between volume, capacity and mass in the case of water   **Skills:**   * Convert between the units of volume, capacity and mass * Solve problems involving the relationship between volume, capacity and mass measurements   **Attitudes and values**:   * Show respect to one another when working in group * Show spirit of tolerance when you are with your friend in a group.   **Key unit competence**: To be able to convert between units of volume, capacity and mass. | * Written work * Questions and answers   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.  (MASTEP Page 119-132 ) |  |
| ***WEEK 5***  ***06-10/2/2023*** | ***Unit 8: Speed, distance and time.*** | **Lesson 1:** Conversion from 12-hr clock to 24-hr clock and vice versa.  **Lesson 2:** Mathematical problems that related to different time zones (e.g. Rwanda and America)  **Lesson 3:** Speed, distance and time | **Knowledge and understanding**:   * Explain relationship between a 12-hour clock and a 24-hour clock * Define speed, distance and time * Identify different units of speed, distance and time. * Explain what determines time zones   **Skills:**   * Solve the problems relate to different time zones * Solve simple problems involving the calculation of speed, distance and time in real life situation   **Attitudes and values:**  Appreciate the relationship between speed, distance and time to understand the notion of time management.  ***Key unit competence***: To be able to calculate speed, distance and time, Solve problems related to different time zones and convert speed from km / hr to m / sec and vice versa. | * Written work * Question and answer   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.  (MASTEP Page 133-149 ) |  |
| ***WEEK 6***  ***13-17/03/2023*** | **Lesson 3:** Conversion of speed from km / hr  to m / sec and vice versa.  **Lesson 4:** Moving bodies and Problems related to speed, distance and time.  ***UNIT ASSESSMENT*** |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***WEEK 7***  ***20-24/02/2023*** | ***Unit 9: Simple interest and problem involving saving.*** | **Lesson 1**: Calculating simple interest, rate, principal and time.  **Lesson 2**: Problems involving simple interest, rates, principal and time. | **Knowledge and understanding**:   * Define the different terms such as simple interest, rate, principal and time. * Explain the importance of saving   **Skills:**   * Solve the problems involving saving * Solve the problems involving calculation of simple interest   **Attitudes and values:**  Appreciate the importance of simple interest and saving in daily life situation  ***Key unit competence***: To be able to work out simple interest and solve problems involving saving. | * Written work * Questions and answers   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.  (MASTEP Page 151-171) |  |
| ***WEEK 8***  ***27/02-03/03/2023*** | **Lesson 3:** Saving: Saving money in the bank, or putting it in investments.  **Lesson 4**: Problems involving saving and simple interest.  ***UNIT ASSESSMENT*** |  |
| ***WEEK 9***  ***6-10/3/2023*** | ***Unit 10: Equivalent expressions and number sequences*** | **Lesson 1**: Algebraic expressions  **Lesson 2**: Equivalent expressions  E.g.  **Lesson3**: Examples of linear sequences or number sequences with general terms.  e.g. 3, 7, 11, ………, 4n-1  **Lesson 4:** Finding the missing numbers or nth term in a linear sequence / numbers  **Lesson 5**: Finding the general term / rule of a linear sequence.  ***UNIT ASSESSMENT*** | **Knowledge and understanding:**   * Give examples of algebraic expressions and equivalent expressions * Explain how to find the rule for determining the nth term in linear sequence   **Skills:**   * Perform operations on algebraic expressions and explain why 2 expressions are equivalent * Calculate the nth term of linear sequence * Find the missing numbers in a linear sequence.   **Attitudes and values:**  Appreciate the importance of orderliness in finding out different terms of a linear sequence and extent it to real life situation.  ***Key unit competence***: To be able to write sequence of whole numbers, fractions and decimals. | * written work * Questions and answers   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book.  (MASTEP Page173-186) |  |
| ***WEEK 10***  ***13/17/03/2023*** | **REVISION PERIOD** | | | | | |
| ***WEEK 11***  ***20-24/03/2023*** | **EXAMINATIONS PERIOD** | | | | | |
| ***WEEK 12***  ***27-31/3/2023*** | **MARKING AND MAKING SCHOOL REPORTS** | | | | | |

**THIRD TERM**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***DATES***  ***&***  ***WEEKS*** | ***UNIT TITLE*** | ***LESSON TITLES*** | ***LEARNING OBJECTIVES*** | ***TEACHING METHODS&***  ***TECHNIQUES*** | ***RESOURCES***  ***AND***  ***REFERENCES*** | ***OBERVATION*** |
| ***WEEK 1***  ***17-21/4/2023*** | ***Unit 11: Solving simple algebraic equation and inequalities*** | **Lesson 1:** Like and unlike terms of algebraic expressions and substitutions.  **Lesson 2**: Simple algebraic equations with one unknown.  **Lesson 3:** Simple algebraic inequalities with one unknown.  **Lesson 4**: Problems involving simple algebraic equation or inequalities with one unknown.  **UNIT ASSESSMENT** | **Knowledge and understanding**:  Describe the process of solving simple algebraic equations or inequalities.  **Skills:**   * Solve word problems involving simple algebraic equation with one unknown * Solve simple algebraic inequalities with one unknown.   **Attitudes and values:**  Appreciate the importance of algebraic equations and inequalities in solving word problems  ***Key unit competence***: To be able to form and solve simple algebraic equations and inequalities. | Written work  Questions and answers  Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book.  (MASTEP Page187-204) |  |
| ***WEEK 2***  ***24-28/04/2023*** | ***Unit 12: Regular polygon and Bearing*** | **Lesson 1**: Definition of polygon  **Lesson 2**: Examples of regular polygons (equilateral triangles, square, pentagon, hexagon, etc)  **Lesson 3**: Elements of regular polygons   * Interior angles and their sum * Exterior angles and their sum * Side and apothem * Perimeter * Area | **Knowledge and understanding:**   * Define a regular polygon * Name and identify regular polygons * Give the formulae used to calculate the perimeter and area of regular polygon * Explain that direction can be specified using compass points and bearing and express the relationship between them * Understand and use the angle sum of a triangle to determine the angle sum of a polygon   **Skills:**   * Derive the interior angle of regular polygon * Find the sum of interior / exterior angles of regular polygon using the angle sum of a triangle * Calculate the length of side, apothem, perimeter and area of regular polygons * Use bearing to define direction   **Attitudes and values:**   * Appreciate the importance of regular polygons in every life activities * Appreciate the relevance of bearing in daily life (e.g. bearings are used by aircraft pilots and tiling patterns in the built environment).   ***Key unit competence***: To be able to use bearing and compass points and understand the relationship between them. To use the angle sum of a triangle to determine the interior angles of regular polygons. | written work  Questions and answers  Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book.  (MASTEP Page205-228) |  |
| ***WEEK 3***  ***01-05/05/2023***  ***WEEK 4***  ***08-12/5/2023*** | **Lesson 4**: Bearing and Compass points  **Lesson 5**: Tiling / Construction  **UNIT ASSESSMENT** |  |
| ***Unit 13: Construction of polygon and nets for cuboids and prisms*** | **Lesson 1** : Construction of polygons using a protractor, a ruler and a pair of compasses . | **Knowledge and understanding:**   * Show how to construct polygons with a given properties using a protractor, a ruler and a pair of compasses * Demonstrate how a 2D shape can be folded to make a 3D and name the 2D shape used. * Show that the net of a solid is not unique   **Skills**:   * Construct polygons using a protractor, a ruler and a pair of compasses * Design nets to make cuboid and prisms.   **Attitudes and values**:  Appreciate that there are likely to be a number of different successful approaches to accurately constructing a polygon or designing a net.  ***Key unit competence***: To be able to construct polygons using a protractor, a ruler and a pair of compasses. Design nets to make cuboids and prisms. | Written work  Questions and answers  Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools.  (MASTEP Page 229-260) |  |
| **Lesson 2**: Design nets to make cuboids and prisms.  ***UNIT ASSESSMENT*** |  |
| ***WEEK 5***  ***15-19/05/2023*** | ***Unit 14: Area bounded by a circle, surface area of cuboids and volume of cylinder.*** | **Lesson 1**: Area bounded by a circle  **Lesson 2**: Surface area of cuboids | **Knowledge and understanding:**   * State the formula for finding the area bounded by a circle and explain how it can be derived from the circumference of circle * Explain the surface area of cuboid as area of its nets. * State the volume of cylinder and explain the meaning of each letter   **Skills**:   * Calculate the area bounded by a circle * Use the nets of cuboid to determine its surface area. * Calculate the volume of cylinder * Select the appropriate units when calculating the area and volume.   **Attitudes and values:**  Appreciate the difference between area, surface area and volume and the importance of using the correct units.  ***Key unit competence:*** To be able to calculate the area enclosed by a circle, the surface area of cuboids and the volume of cylinder. | * Group * Questions and answers   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali –Rwanda . Mathematics for Rwanda Schools, Learners book. (MASTEP Page 261-277) |  |
| ***WEEK 6***  ***22-26/05/2023*** | **Lesson 3**: Volume of a cylinder.  ***UNIT ASSESSMENT*** |  |
| ***WEEK 7***  ***29/05-02/06/2023***  ***WEEK 8***  ***05-09/06/2023***  ***WEEK 9***  ***12-16/06/2023*** | ***Unit 15: Statistics*** | **Lesson 1**: Collect data to investigate a question.  **Lesson 2**: Explore a hypothesis using a tally to complete a frequency table.  **Lesson 3**: Represent data using a bar chart or simple pie chart. | **Knowledge and understanding:**   * Explain when it is appropriate to use tally and how to obtain frequency from the tally * Explain how to use pie charts to represent proportions * Interpret line graph as representation of data.   **Skills:**   * Devise a question or hypothesis that require data for its resolution * Decide what data to collect to answer the question * Collect data using a table and tally * Represent data in a bar chart where the total frequency is a factor of 3600 * Interpret the representation of data to draw conclusion.   **Attitudes and values:**   * Appreciate the power of data to answer questions and adopt a systematic and organized approach to dealing with data.   ***Key unit competence:*** To be able to extend methods for collecting data, representing and interpreting it in order to answer a question or explore a hypothesis. | Written work  Questions and answers  Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book. (MASTEP Page 279-292) |  |
| **Lesson 4**: Interpret bar char and pie chart to draw a conclusion  ***UNIT ASSESSMENT*** |  |
| ***WEEK 10***  ***19-23/06/2023*** | ***Unit 16: Probability*** | **Lesson 1**: Vocabulary of chance and associated ordering   * Impossible * Certain * Equally * Likely * Even chance * Unlikely   **Lesson 2**: Use data to decide how likely something is to happen.    ***UNIT ASSESSMENT*** | **Knowledge and understanding**:  Explain that random events have different chances to occur and illustrate each terminology related to probability.  **Skills:**   * Use the language of chance and associate it with events * Use likelihood to compare and order events   **Attitudes and values:** Appreciate that the random events cannot be predicted  ***Key unit competence:*** To be able to order events in terms of likelihood (impossible, equally likely, certain) | * written work * Questions and answers   Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.  Mathematics for Rwanda Schools, Learners book.  (MASTEP Page 293-297) |  |
| ***GENERAL REVISION*** | | | | | |
| ***WEEK 11***  ***26-30/06/2023*** |
| ***WEEK 12***  ***03-07/07/2023*** | ***EXAMINATION*** | | | | | |
| ***WEEK 13***  ***10-14/07/2023*** | ***MARKING AND CORRECTION OF EXAMS*** | | | | | |
| ***WEEK 14***  ***17-19/07/2023*** | ***NATIONAL EXAMINATION*** | | | | | |